

CLAIMS

- 14/3*
1. Method to divide upstream timeslots in a multiple access system that couples a line terminator (LT) via a tree-like network to a plurality of network terminators (NT1, NT2, ..., NT16) and that distributes downstream data packets by said line terminator (LT) to said plurality of network terminators (NT1, NT2, ..., NT16), said method including the steps of :
    - inclusion by said line terminator (LT) in a downstream data packet at a predefined place of a grant (TEA1, TEA2, ..., TEA16) being associated to one of said plurality of network terminators (NT1, NT2, ..., NT16) and distributing said downstream packet, and
      - reacting by each one of said network terminators (NT1, NT2, ..., NT16) upon reception and recognition of its own grant by transmitting an upstream data packet in a predefined upstream timeslot,  
characterised in that said step of transmitting includes,
        - in the event when said one of said network terminators is a lower order network terminator and said predefined place is a predefined first place, transmitting said upstream data packet in a lower order timeslot,
        - in the event when said one of said network terminators is a higher order network terminator and said predefined place is a predefined first place, transmitting said upstream data packet in one of a plurality of higher order timeslots, said higher order timeslots being subslots of a predefined number of higher order subslots included in said predefined upstream timeslot, and
          - in the event when said one of said network terminators is a higher order network terminator and said predefined place is a predefined second place, transmitting said upstream data packet in a said higher order timeslot.
2. A line terminator (LT) for realising division of upstream timeslots in a time division multiple access system that couples said line terminator (LT) via a tree-like network to a plurality of network terminators (NT1, NT2, ..., NT16) and wherein said line terminator (LT) distributes downstream data packets to said plurality of network terminators (NT1, NT2, ..., NT16) said line terminator (LT) comprising :

- inclusion means (INC) adapted to include in a downstream data packet at a predefined first place a grant (TEA1 ; TEA2 ; ...; TEA16) associated to one of said plurality of network terminators, characterized in that

- said inclusion means (INC) is further adapted in the event when  
5 one of said plurality of network terminators (NT3) is a higher order network terminator to include at a predefined second place of said downstream data packet a grant (TEA3) being associated to said one of said plurality of network terminators (TEA3).

3. A network terminator (NT3) for use in a time division multiple access system that couples a line terminator (LT) via a tree-like network to a plurality of network terminators (NT1, NT2, ..., NT16) including said network terminator (NT3) said network terminator (NT3) comprising :

- recognition means (REC) to recognise its own grant (TEA3) in a downstream packet sent from said line terminator (LT) to said network terminator (NT3), and

- transmitting means (TR) to transmit a data packet in a predefined upstream timeslot upon recognition of said own grant (TEA3)  
characterised in that said network terminator (NT3) is adapted to transmit upstream data packets at a higher order data packet rate and that  
20 therefor

- said recognition means (REC) is further adapted to recognise its own grant (TEA3) at a predefined first place and that said transmitting means (TR) is adapted, upon recognition by said recognition means (REC) of said own grant (TEA3) at said predefined first place to transmit data packet in one of a plurality of higher order timeslots, said higher order timeslots being a subplot of a predefined number of higher order subslots included in said predefined upstream timeslot, and

- said recognition means (REC) being further adapted to recognise its own grant (TEA3) at a predefined second place and that said transmitting means (TR) is further adapted, upon recognition by said recognition means (REC) of said own grant (TEA3) at said predefined second place, to transmit said data packet in a said higher order timeslot.

4. Method according to claim 1, characterized in that said time division multiple access system is a Passive Optical Network (PON) system and that said downstream data packets are Physical Layer Operation and Maintenance (PLOAM) cells.
5. Method according to claim 4, characterized in that said first predetermined place is a location within said Physical Layer Operation and Maintenance (PLOAM) cells reserved for so-called non-idle grants as specified in the ITU-T Recommendation G.983.1, whereas said second predetermined place is a location within said Physical Layer Operation and Maintenance 10 (PLOAM) cells reserved to idle grants as specified in the ITU-T Recommendation G.983.1.